

REQUEST FOR ACCESS TO AN APPLICATION UNDER 37 CFR 1.14(e)

In re Application of _____

Application Number

07/891,177

Filed

5-29-92

Art Unit

Examiner

Paper No. 7

Assistant Commissioner for Patents
Washington, DC 20231

1. ☒ I hereby request access under 37 CFR 1.14(e)(2) to the application file record of the above-identified ABANDONED Application, which is not within the file jacket of a pending Continued Prosecution Application (CPA) (37 CFR 1.53(d)) and is: (CHECK ONE)

☒ (A) referred to in:

United States Patent Application Publication No. _____, page _____, line _____,

United States Patent Number 6,271,037, column _____, line _____, or

an International Application which was filed on or after November 29, 2000 and which

designates the United States, WIPO Pub. No. _____, page _____, line _____.

- ☐ (B) referred to in an application that is open to public inspection as set forth in 37 CFR 1.11(b) or 1.14(e)(2)(i), i.e., Application No. _____, paper No. _____, page _____, line _____.

2. ☐ I hereby request access under 37 CFR 1.14(e)(1) to an application in which the applicant has filed an authorization to lay open the complete application to the public.

Doanh Kim Vu
Signature

Date _____

Doanh Vu
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Unit: _____ (initials)



US006271037B1

(12) **United States Patent**
Chait et al.

(10) **Patent No.: US 6,271,037 B1**
(45) **Date of Patent: Aug. 7, 2001**

(54) **METHOD AND PRODUCT FOR THE
SEQUENCE DETERMINATION OF
PEPTIDES USING A MASS SPECTROMETER**

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(*) **Notice:** Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

(21) **Appl. No.: 08/341,555**

(22) **PCT Filed: May 27, 1993**

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PCT Pub. Date: Dec. 9, 1993

Related U.S. Application Data

(63) **Continuation-in-part of application No. 07/891,177, filed on
May 29, 1992, now abandoned.**

(51) **Int. Cl.⁷ G01N 33/00**

(52) **U.S. Cl. 436/89; 436/173; 436/174;
436/178; 250/281; 250/282**

(58) **Field of Search 436/89, 173, 174,
436/178; 250/281, 282**

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,820,648 * 4/1989 Caprioli et al. 436/89
5,045,694 9/1991 Beavis et al. 250/287
5,118,937 6/1992 Hillenkamp et al. 250/282

5,240,859 * 8/1993 Aebersold 436/89
5,281,538 1/1994 Cottrell et al. 436/173
5,288,644 2/1994 Beavis et al. 436/94
5,527,675 * 6/1996 Coull et al. 435/6
5,719,060 * 2/1998 Hutchens et al. 436/174
5,792,664 * 8/1998 Chait et al. 436/89

FOREIGN PATENT DOCUMENTS

529 604 A1 3/1993 (EP) .
WO 94/06017 3/1994 (WO) .

OTHER PUBLICATIONS

HCAPLUS DN 103:34503, Aleksandrov et al., Bioorg.
Khim., 11(5), (1985), 705-8.*

Aebersold et al., *Protein Science*, 1: pp. 494-503, 1992.*

Beavis et al., *Organic Mass Spectrometry*, vol. 27, pp.
156-158, 1992.*

Kent, *Annual Rev. Biochem.*, 57: pp. 957-984, 1988.*

L.A. Smith, R.M. Caprioli (1983) *Biomed. Mass Spectrom.*
10:98. "Following Enzyme Catalysis in Real-time Inside a
Fast Atom Bombardment Mass Spectrometer".

G.E. Tarr (1977), *Methods Enzymology* 47:355. "Improved
Manual Sequencing Methods".

S.H. Kent, *Annual Rev. Biochem.* 57:957-984, (1988).
"Chemical Synthesis Of Peptides And Proteins".

(List continued on next page.)

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(57) **ABSTRACT**

Method is described for sequencing polypeptides by forming
peptide ladders comprising a series of polypeptides in which
adjacent members of the series vary by one amino acid
residue and determining the identity and position of each
amino acid in the polypeptide by mass spectroscopy.

45 Claims, 16 Drawing Sheets

1-2-3-4-5-6-7-8-9.....n(OH)

INTACT STARTING

PEPTIDE CHAIN

(X)-1-2-3-4-5-6-7-8-9.....n(OH)

(X)-2-3-4-5-6-7-8-9.....n(OH)

(X)-3-4-5-6-7-8-9.....n(OH)

(X)-4-5-6-7-8-9.....n(OH)

(X)-5-6-7-8-9.....n(OH)

etc.